

Abstract

Disclosed is a pre-heater for vehicles comprising: A PTC element module including a positive terminal composed of two sheets, an upper sheet of which has a fastening hole and upward bended ribs formed at opposite edges of the fastening hole; a ring-shaped insert insulator inserted between the ribs; a PTC element inserted into an inside of the insert insulator, a bottom surface of which is in contact with a lower sheet of the positive terminal; one heat fin assembly closely fastened to one surface of the PTC element ; another heat fin assembly fastened to the other surface of the PTC element through the medium of a positive terminal and an entire surface insulator; and a fastening insulator for binding together the two heat fin assemblies, the PTC element , the positive terminal and the entire surface insulator, and a heat fin assembly disposed parallel to the PTC element module; a negative terminal disposed parallel to the heat fin assembly; frames and respectively fastened to both ends of a combined body including the PTC element module; the heat fin assembly, and the negative terminal; and housing and respectively fastened to both longitudinal ends of a combined body including the PTC element module, the heat fin assembly, the negative terminal, and the frames and. In accordance with the present invention, the pre-heater has advantages capable of more facilitating assembly and maintenance and remarkably improving productivity, since the PTC element module and so on may be modulized.

Appendix